

REMARKS

In response to the Advisory Action mailed March 12, 2003 and supplemental to the amendment mailed February 13, 2003 and the RCE filed herewith, reconsideration is respectfully requested in view of the following remarks. To further the prosecution of this application, Applicants have addressed each of the issues raised in the Final Office Action and the Advisory Action with the previous amendment, to be entered upon receipt of the RCE filed herewith, and the present supplemental amendment, as discussed below. By this amendment, no claims have been amended. No new claims have been added. Claims 1-65 are pending for examination with claims 1, 9, 12, 17, 21, 24, 27, 31, 34, 37, 38, 39, 58, 62, 63, and 64 being independent claims. The application as now presented is believed to be in condition for allowance.

A. Amendments to the Specification and Claims

All of the amendments made herein are offered for the purpose of correcting obvious errors, mostly typographical, identified in the course of translating the application into Japanese. No new matter has been added.

B. Discussion of Advisory Action

In addition to entering the response filed by Applicant's on February 13, 2003 as requested in the RCE transmitted herewith, Applicant submits the remarks below in response to the Examiner's comments in the Advisory Action mailed March 12, 2003.

In paragraph A of the Advisory Action, the Examiner states that the waveform for P1 + P2 (P1 OR P2) raises new issues that would require further consideration and/or search. The Office Action states, "for instance, it is not understood the ON/OFF operation of the switch S13 in Fig. 5 with respect to P1 signal and with respect to the time since it is now shown to have two pulses." In the telephone conference on January 13, 2003, the undersigned attorney discussed with the Examiner the meaning of the P1 + P2 signal shown in Fig. 5 and the operation of switch S13. Specifically, it was pointed out that the concept of an input signal which is the logical OR of two other signals is one of the simplest and most basic concepts in computer science or electrical engineering, and that a switch which may be controlled by signals containing pulses at different instances in time may also be controlled by the OR of those two signals. It is baffling to Applicant that the Examiner has difficulty with this basic engineering truth, and equally

baffling that the Examiner did not appreciate what the waveform P1 + P2 looks like when P1 and P2 were given. Applicants have discussed this aspect of the invention and specification in the first full paragraph of page 8 of the amendment mailed on Feb. 13, 2003, including references to the portions of the specification which describe the operation of switch S13. The operation of the device and switches shown in Fig. 5 should be perfectly clear to anyone of ordinary (or even much less than ordinary) skill in the art of electrical engineering who had read the indicated portions of the specification. *If, upon reading the aforementioned portions of the previous response and the specification, the Examiner still cannot understand the ON/OFF operation of the switches in the device shown in Fig. 5, Applicant requests the scheduling of a personal interview with the Examiner and his supervisor.*

In paragraph B, the Advisory Action characterizes the telephone interview of January 13, 2003, stating that only the charge sharing feature was in discussion but no agreement was reached between Applicant and the Examiner. The undersigned attorney respectfully points out that the rejections under 35 U.S.C. §112 were discussed at length and their resolution was agreed before the discussion moved on to the discussion of the charge sharing feature. Applicant's explanation of charge sharing, as claimed, is repeated herein. It was believed the Examiner understood and agreed that Da Franca et al. does not teach charge-sharing, as claimed, but this new communication reveals otherwise.

In paragraph C, the Advisory Action states that "Da Franca et al., 5,008,674, does disclose the teaching that the total charge on all capacitors CPi during clock phase ϕ_0 in Fig. 3 Prior Art is transferred to the capacitor CF (see lines 23-29, column 3). Therefore, this teaching is inherently the charge sharing feature which Applicant is trying to claim." This statement is manifestly and completely incorrect for at least two reasons, revealing a fatal misunderstanding by the Examiner.

First, as discussed on page 12 of the response filed February 13, 2003 and in the telephone conference with the Examiner on January 13, 2003, Da Franca does not disclose "charge sharing" *as taught in Applicants' specification and claimed*. For instance, from page 16, line 15 to page 17, line 10, Applicants' specification, in reference to Figs. 8A-8D, describes charge sharing as a process by which each of the sharing capacitors in Figs. 8A-8D is connected in such a way that the charge on one capacitor can influence the amount of charge on the other capacitors, and results in changing the voltage across the parallel charge-sharing capacitors. In

contrast, as discussed in the telephone interview, **at no point can the charge on any of the capacitors in the group CP0 through CPw-1 of Da Franca et al. influence or change the amount of charge on any one of the other capacitors.** In the portion of Da Franca cited by the Examiner, Da Franca indicates that during clock phase ϕ_0 , all of capacitors CP0 through CPw-1 have one side coupled to either ground or V_R and the other side coupled to the virtual ground terminal of the op amp. **Therefore, each capacitor has its voltage completely determined at this step, and thus its charge is completely determined (since $Q=CV$). The charge of each capacitor is set and is not/cannot be shared.**

Second, the Examiner purports that the transfer of charge from capacitors CP0 through CPw-1 to capacitor C_F entails charge sharing. This is incorrect. First, charge is not shared between the C_F and the other capacitors as discussed above. Instead, charge is forced to *be transferred to capacitor C_F from all of capacitors CP0 to CPw-1, leaving all of capacitors CP0 discharged.* The resulting charge on capacitor C_F cannot influence the charge on any of the other capacitors. In fact, that is its purpose: it simply collects all of the charge and serves as an integrating capacitor. None of capacitors CP0 to CPw-1 has the same voltage across it as capacitor C_F .

Moreover, capacitor C_F is not one of the “sub-DACs” as claimed in each of the pending independent claims. For instance, claim 1 recites that “the switched capacitor network having a plurality of **sub DACs that each receive an associated bit of the multi-bit digital signal**, each of the plurality of sub DACs having an associated capacitance that receives an associated amount of charge in response to the associated bit, wherein the associated amount of charge for each of the plurality of sub DACs is in direct proportion to a weight of the bit, **the DAC having a charge sharing operating state in which at least two of the plurality of sub DACs share charge with one another.**” (Emphasis added).

Thus, not only does capacitor C_F not participate in charge sharing as discussed above, even if it did, it still would not meet the limitations of the claimed invention, since capacitor C_F is not a sub-DAC that receives an associated bit of the multi-bit digital signal.


For at least the foregoing reasons, the rejection of claim 1-65 set forth in the Final Office Action mailed September 13, 2002 is unfounded and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
FERGUSON et al, Applicants

By: 

Steven J. Henry, Reg. No. 27,900
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2211
Telephone: (617) 720-3500

Docket No. A00312.70409.US
Date: June 30, 2003
xNDD